

## **Remarks**

### **Claim Rejections under 35 USC §112**

Claims 15 and 16 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically, the Office Action indicates that the specification should specifically teach the complexing step and that this step should be included in the claims.

It is respectfully submitted that ionically complexing of ionic species is well known to the skilled artisan, and that methods of carrying out this process are fundamental to those of skill in this art. Evidence of this knowledge is provided, for example, in the disclosure of US Patent No. 5,434,030, particularly at column 4, lines 5-17. The '030 patent used ionic crosslinking of dyes in toners in a different manner than used in the present application. The disclosure of the '030 patent was incorporated by reference in the subject application.

It is respectfully submitted that the teaching of the present specification is appropriately provided to the skilled artisan, and that no amendment is required to provide unnecessary details for well understood process steps.

### **Claim Rejections under 35 USC §103**

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morrison et al in view of Uytterhoven et al and Gundlach et al.

The present invention relates to unique organic pigments, which are complexed ionic dyes provided in liquid electrographic toner compositions comprising a liquid carrier having a Kauri-Butanol number less than about 30 mL and a plurality of toner particles dispersed in the liquid carrier. The toner particles comprise polymeric binder and an organic pigment comprising a first ionic dye component ionically complexed with a second ionic dye component in a predetermined ratio to form an ionically complexed colorant compound exhibiting a predetermined color. The pigment has a molecular weight of less than about 5000 Daltons and is substantially free of metals that are not covalently bonded to the colorant compound. The organic pigment is insoluble in the

liquid carrier and is insoluble in water. Providing single compounds that are complexes of two different ionic dye components provides distinct advantages as follows:

Toners of the present invention utilize unique pigment chemistries that afford formulation options not previously available in the art through the ability to use materials having unique solubility properties both prior to and after complexation. Toners comprising these pigments exhibit superior performance properties related to less migration, staining and surprisingly low solubility properties in water or other selected carrier solvents. Additionally, the non-polymeric pigments provide advantages in milling properties, dispersibility properties, charge properties and chemical interaction properties that were not previously available. Non-polymeric pigments may have superior melting and coalescing properties in the toner particle, and superior agglomeration and moisture interaction properties as well. Finally, the use of a plurality of dye components in the present pigment provides unique color properties in the present toner compositions. See the present specification in the Summary of the Invention section, pages 4-7.

Morrison discloses a colorant embedded in a thermoplastic organosol, wherein the colorant is selected from conventional colorants listed at column 7, lines 40-61. As recognized in the Office Action, Morrison fails to teach the dyes as anionic and cationic complexed dyes.

Uytterhoven describes a liquid electrophoretic developer composition suitable for rendering visible electrostatically charged areas. This composition provides a non-polar carrier liquid with dispersed coloring matter acting as toner particles and at least one polymer comprising cationic groups neutralized with counter anions, the said cationic groups being positively charged groups of metal ion containing coordination compounds. See the Abstract. Thus, it is the polymer of the toner particle that is charged, and which is neutralized by counter ions. The counter ions are disclosed in the Uytterhoven specification beginning at column 2, line 7, and are not dyes or pigments. Rather, conventional pigments are used in Uytterhoven, as discussed at column 12, lines 1-40. Uytterhoven therefore also fails to teach colorants in toners that are anionic and cationic complexed dyes, and adds nothing to the Morrison disclosure that would teach or suggest the subject matter of the present claims.

Gundlach relates to ink compositions with amine functionalized pigments for ink jet printing, wherein a first ink is provided with a first color with an anionic dye, and a second ink is provided with a second color by a pigment having amine or quaternary amine moieties bound thereto. In use, the first ink is applied to a substrate, and the second ink is subsequently applied to the substrate. The inks interact to prevent intercolor bleed. As explained in US Patent No. 5,106,416 to Moffatt, as

cited by Gundlach at a portion identified by the Examiner, "color bleed," as used in this art, is a surface phenomenon of the invasion of one color into another color on paper. Thus, Gundlach is focused on avoiding interaction of the colors.

In contrast, in the present invention the dyes are complexed directly with each other, so that the dye components provide an effective color that delivers an intended color effect. See the present specification at page 9, lines 3-19.

The present claims expressly require that all dye components that form a pigment are present in the same toner composition, which is the opposite of the Gundlach requirement that the dyes be provided in separate inks to be applied sequentially. To combine the dyes of Gundlach in the same ink would destroy the intended functionality of having one ink in a multicolor ink set act as a fixative or stabilizer against color bleed for another ink.

The skilled artisan would have had no motivation to prepare a toner composition comprising unique organic pigments that are complexed ionic dyes as provided herein by reference to the cited references, either alone or in combination. Furthermore, the skilled artisan could not have expected that such toner compositions would exhibit excellent formulation advantages and performance properties as described herein from the cited prior art.

### **Claim Rejections – Double Patenting**

Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 20 and 21 of copending Application No. 10/676140.

Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 21, 22 and 25 of copending Application No. 10/676323.

In order to overcome this provisional rejection and to expedite prosecution, a terminal disclaimer in view of copending Application Nos. 10/676140 and 10/676323 is enclosed without prejudice.

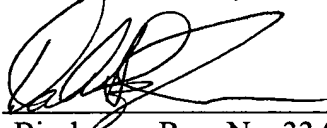
### **Conclusion**

It is respectfully submitted that the claims as amended are in condition for allowance. Early favorable notice to that effect is earnestly solicited. In the event that a phone conference between the

Examiner and the Applicants' undersigned attorney would help resolve any remaining issues in the application, the Examiner is invited to contact the attorney at (651) 275-9811.

Respectfully Submitted,

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